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## PATENT COOPERATION TREATY

PCT


INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 08 MAR 2005

WIPO

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Applicant's or agent's file reference P26579PC00	<b>FOR FURTHER ACTION</b> See Form PCT/PEA416	
International application No. PCT/IB2004/050368	International filing date (day/month/year) 31.03.2004	Priority date (day/month/year) 11.04.2003
International Patent Classification (IPC) or national classification and IPC C07C67/38		
Applicant SASOL TECHNOLOGY (PTY) LTD		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input checked="" type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input checked="" type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand  27.09.2004	Date of completion of this report  07.03.2005	
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Bueno Torres, M  Telephone No. +49 89 2399-8290	



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/IB2004/050368

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-18 as originally filed

**Claims, Numbers**

1-17 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

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1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 15-17

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 15-17 are so unclear that no meaningful opinion could be formed (*specify*):

**see separate sheet**

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos.

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form ☐ has not been furnished

☐ does not comply with the standard

the computer readable form ☐ has not been furnished

☐ does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☐ See separate sheet for further details

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	11-12
	No: Claims	1-10, 13-14
Inventive step (IS)	Yes: Claims	11-12
	No: Claims	1-10, 13-14
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

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**Box No. VI Certain documents cited**

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**1. Certain published documents (Rule 70.10)**

and / or

**2. Non-written disclosures (Rule 70.9)**

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**Re Item III.**

see point VIII (ii) and (iii) below

**Re Item V.**

1. The following document is referred to in this communication:

D1: EP-A-0 314 309 (THE BRITISH PETROLEUM COMPANY) 3 May 1989  
(1989-05-03)

D2: EP-A-0279477 (SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ)  
24 August 1988 (1988-08-24)

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

The subject-matter of claim 1 relates to a carbonylation process comprising reacting at least one **unsaturated reactant** in the form of a compound having an aliphatic moiety with at least one unsaturated carbon-carbon atom; **carbon monoxide**; and a **nucleophilic co-reactant** in the presence of a **Group VIII metal catalyst**; wherein the catalyst is prepared by the reaction of:

**i) a source of Group VIII metal;**

**ii) a ligating compound** to coordinate to the Group VIII metal, which ligating compound **includes at least one atom selected from phosphorous, arsenic and antimony**

**iii) an anion or a source thereof of general formula (II).** Claim 11 relates to the use of the anion of formula (II) in said process.

All the above features and the features disclosed in the dependent claims have been already disclosed in D1. Therefore, the subject-matter of claims 1-10 and 13 lacks novelty vis-à-vis D1.

The subject-matter of claims **11** and **12** is regarded as novel vis-à-vis D1 on account of the presence of the phosphine of formula (VII)

Claims 1-14 are novel vis-à-vis D2 on account of the anion or source thereof of general formula (II).

3. D2 discloses a carbonylation process of an alkene with carbon monoxide and a hydroxyl group containing compound in the presence of a catalytic system comprising Pd or a Pd compound, a ligand and an acid. Acids preferably used are **sulphonic acids** and those formed by interaction of  $\text{Bf}_3$  with said sulphonic acids. The present process differ from the one disclosed in D2 due to the use of the anion of formula (II). The applicant has demonstrated by means of comparative data that this results in a reduction in the formation of inactive salts of the ligating compound (see example 3). Said results are not regarded as obvious in the light of the disclosure of D2.

Furthermore, D1 discloses that the catalyst for preparation of interpolymers of olefines and carbon monoxide are **bidentate** phosphines, amines, arsines or stibines and that the most convenient species are the **bidentate** phosphines (see page 3, lines 38-50 of D1). It is not regarded as obvious that the use of the **monophosphine** catalyst as defined in claims 11 and 12 a product containing a single unit of the unsaturated reactant in its reacted form can be obtained.

Therefore, the subject-matter of claims 11-12 is considered to meet the requirements of Art. 33(3)PCT.

#### Re Item VI.

D3: WO 03/070370 A (SHELL INTERNATIONALE RESEARCH  
MAATSCHAPPIJ)

Priority date 19 February 2002 (19.02.02)

International Filing date 18 February 2003 (18.02.03)

International Publication date 28 August 2003 (2003-08-28)

Re Item VIII.

- i) Claims 1 and 14 do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. Claims 1 and 14 do not contain any technical feature than the ones already disclosed in D1.

D1 relates to a process for the preparation of **polyketones**. Therefore, the expression in the claims **"to produce a product containing a single unit of the unsaturated reactant in its reacted form"** attempts to define the subject-matter in terms of the result to be achieved, which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result.

Therefore, claims 1 and 14 not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

- ii) Claim 15 does not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The expression **"wherein the reduction in the formation of inactive salts of the ligating compound is compared to the same reaction under the same conditions wherein the source of anion or anion is replaced with methanesulphonic acid"** renders the scope of the claim unclear.
- iii) Claims 16 and 17 contain references to the examples of the description. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here.